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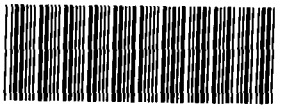
2/28/96

1 of 45

Draft Final OU6 RFI/RI
Walnut Creek Priority Drainage

NAH 4-18-96



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COMMENTS FROM SAIC.

General Comments:

The document is thorough and unusually well written Some of the detail on general information and discussion of methods could be moved to an appendix to reduce the bulk of the text As usual with such a document, technical editing should be conducted In some instances the table of contents is incomplete and figures could be adjusted to improve clarity

Title of report should not use "Phase I" unless there are plans to prepare additional RFI/RI reports entitled "Phase II," etc

Specific Comments

Page liv, **Table of Contents, OU6 List of Acronyms and Abbreviations** - 1,2,-dichloroethane is misspelled

Page lv, **Table of Contents, OU6 List of Acronyms and Abbreviations** - The chemical designation for Cesium should be "Cs "

Page lvi, **Table of Contents, OU6 List of Acronyms and Abbreviations** - The definition for "meq/l" should be "milliequivalents/liter "

Pages 2-7, 2-9, 2-12, 2-13, 2-21 - Figures 2 1-2, 2 1-3, 2 1-4, 2 1-5, and Table 2 2-3 are missing from the report

Section 1 3 2 1st paragraph The symbols used in Figure 1 3-3 (referenced in 1 3 2) for the historical locations of IHSSs 167 2 and 167 3 is the same except for different line weight as the symbol used for the present landfill, IHSS 114 Symbols with more significant difference should be used The legend does not show the symbol for the landfill The text only refers to the historical and revised boundaries of IHSS 167 2, but the figure shows revised boundaries for both IHSSs

2nd paragraph This paragraph indicates that the locations of IHSS 167 2 and 167 3 were revised and the boundaries of 5 other IHSSs adjusted in the HRR based on a reevaluation that happened after the OU6 Work Plan was written This paragraph goes on to say that the investigations were carried out according to the specifications in the work plan but that the Phase I boreholes and wells were located after a review of the historical data and aerial photographs It is assumed that the investigations were conducted in the adjusted areas rather than in the previous locations This is not clearly stated in the text

Section 1 3 2 1 4th sentence, 3rd paragraph Delete one of the two references to June, 1972

Section 1 3 2 2 This section contains a description of the streams that drain surface water from the area and does not describe particular IHSSs It does, however, lead into the description of the A and B-Series ponds Consideration should be given to move this section to another area in the report that describes physiographic features such as Section 3, or editing it into the description of the A and B-Series ponds

Section 1 3 2.4 The 5th paragraph says that the B-3 pond receives effluent from the STP It is not clear how the effluent reaches B-3 without encountering ponds B-1 and 2 These 2 ponds lie between the STP and B03 and no diversion or pipeline is shown that would by-pass B-1 and 2 (see figures 1 3-3 & 1 3-6)

Figure 1.3-8 The area of detail for IHSS 143 is not graphically consistent with the drawling it details The detail map uses the designation "stream" which must be the McKay Ditch shown on the larger drawling The orientations of these 2 features ("stream" and McKay Ditch) are not consistent on the 2 drawings Both maps should use the same designations and show similar features in the same orientation so that the reader can easily relate the features

Section 1.3.2 9 2nd paragraph A reference is made to a 1988 EPA document that provided information about the history of the A, B, and C Trenches Earlier, in section 1 3 2, 3rd paragraph, the sources for the descriptions of the IHSSs was given and the EPA document was not included in that list of sources

Section 1 3.2 10 This section is not listed in the Table of Contents

Section 1 4 2nd paragraph Six Technical Memoranda were prepared and the purpose of this paragraph was apparently to list them The paragraph lists 7 documents as bulletted items and only labels 5 as being TMs This inconsistency should be fixed

Section 2 1 4th paragraph This paragraph describes when decontamination of various equipment occurred No mention of decontamination prior to the investigation has been made, only that equipment was decontaminated between IHSSs and at the end of the investigation

Section 2 1.3.1 2nd paragraph The text states, "VOC continuous samples were collected throughout the entire borehole depth for lithologic logging purposes " VOC samples and lithologic samples should be handled differently Samples used for lithologic logging should not be used for VOC samples for obvious reasons

Section 2 1 3 4 How where the 3 soil profile locations selected? They seem to be spread out across OU6 to give general coverage Or were they selected based on specific IHSS requirements?

Section 2 2 2nd paragraph Please give more detail to the explanation why the stage numbering in this report does not match the numbering assigned in the work plan The stages numbered in the work plan follow the logical order in which the investigation should have proceeded Later stages may be based on the preliminary data gathering or preliminary field surveys

Section 2.2 2 Page 2-22, third para , A and B-Series Ponds (IHSSs 142 1 through 142 9), W&I Pond (IHSS 142 12), and Walnut Creek Drainages (Non-IHSS), Stage 4 - This paragraph states that no analytical results were used from the wells 75092 and 75292 If this is true, then Table 2 2-1 and this section should state that this was a deviation from the TM1 and was an incomplete Phase I investigation, since installation with no data availability does not constitute completion

Section 2 2 3 Page 2-24 Deviations from the Work Plan - Why was the boundary of IHSS 143 not extended, if the suspected contamination was outside the defined area?

Section 2 2 5 Page 2-29, third para , Stage 2 - This paragraph presents some results for this IHSS, yet no other IHSS has results presented in Section 2 Why give results here?

Section 2 2 5 Page 2-29, Deviations from TM1 and Work Plan - The change in spacing from 25-foot to 40-foot should be explained

Section 2 2.5 Page 2-30 Deviations from TM1 and Work Plan, second bullet - Explain why it is necessary to state that the SGS grid spacing was not reduced for this sample site

Section 2.2.6 Page 2-33 Stage 3, first para - This paragraph indicates that no soil borings were made and, therefore, no data was collected on the actual IHSS If there was no time to perform this work after the IHSS location was redefined, this report should so state Presenting data for a location that is not of interest and has no bearing on the investigation should be deleted from the report

Section 2 2.7 Page 2-35 Stage 1, first para - The IHSS should be sampled, if the area of concern is not the IHSS, the IHSS should be relocated IHSS 167 3 does not appear to have been sampled

Table 2 1-1 second column, first item for Walnut Creek Drainage - What type of activity had 11 "things" done?

Table 2 2-1 page 4, IHSS 156 2, Soil Dump Area, Radiation Survey - Reason for Deviation is given as "As per EG&G " This is not a reason The explanation in the text should be inserted here

Section 2 4 The review of aerial photography showed that IHSS 156 2 extended further to the west than previously thought This additional area was not sampled No explanation other than paved and gravel covered areas were not sampled Is this sufficient justification for not sampling about 1/4 of the IHSS? Gravel was removed prior to sampling in IHSS 165 (Section 2 2 5)

Section 2 2 5 Why were the deviations from TM1 and the work plan for Stage 2 activities made and what is the justification for them? Provide support for the reduced scope of the investigation (especially the rad survey) and evidence that it provides adequate information and meets the DQOs

Section 2 2 6 The east part of Trench C was relocated south of the soil borings (taken to investigate this trench) based on the geophysical survey Are the existing borings sufficient to characterize Trench C If so give supporting reasons and if not what is the justification for not taking new soil borings within the new boundary of the east part of Trench C?

Section 3.6.2.1.2 This section describes the recharge to the UHSU The 4th paragraph describes recharge from the present landfill (IHSS 114) and refers to Figure 3 6-1 Please show the location of the present landfill on this figure to assist the reader The text states that groundwater flows from the present landfill to the southeast toward South Walnut Creek The southeast flow from the present landfill is actually toward North Walnut Creek

Section 3.7 3 This section discusses the capacities of the A and B series ponds relative to volumes of runoff The section discusses previous high precipitation events but does not include the probable record runoff of 1995 While this data may be too new for thorough analysis, this report should mention the event and its impact on the ponds and potential off-site migration of contaminants in a general qualitative way

Section 3 7 4 6th paragraph This paragraph discusses several of the sub-basins of Walnut Creek The first sentence uses the term "best developed drainage" to define the sub-basins essentially around the security area Define the meaning of "best developed drainage "

Section 3.8 Ecology section, "To be supplied by Stoller," is missing

Section 3 9 1 2 2nd paragraph The text says that 2 borings were drilled adjacent and parallel to 2 other borings What does parallel mean in this usage?

Section 4.2.4 Please include a brief discussion of the 5X and 10X rules referred to in the 4th paragraph

Section 4.3.5 5th paragraph Why were antimony and manganese retained as COIs?

Section 5 1 3 5th paragraph Please explain the meaning of " when flow carrying capacity is less than the resistance of sediment " in the first sentence

6th paragraph Isn't outflow from at least some of the ponds restricted and as a consequence any sediment flowing into the pond will necessarily precipitate in the pond unless resuspended by a large storm event? If this is the case the discussion of when deposition will occur in the ponds is unnecessary because all sediment will ultimately precipitate in the ponds

Section 5 2.1 Sediment Transport The last sentence says that sediment transport processes tend to slow the migration of chemicals with high partition coefficients relative to those with low coefficients This is not exactly true Chemicals with high partition coefficients rely on sediment transport for migration These chemicals, because they are bound to sediment particles due to their high partition coefficients, are not free to migrate as dissolved constituents of water It is not the sediment transport process that slows their migration but their high partition coefficient

Section 5 3 2 Last paragraph Metals and radionuclides have been found in groundwater from wells located near the W&I Pond Is it possible that these contaminants are associated with surface soils that were introduced to the groundwater during the drilling and well installation process rather than from groundwater itself? There have been problems with contamination introduced to groundwater by drilling in this area

Section 5 4 1st paragraph In this paragraph the text says that "It was determined that only one of the identified conditions (VC in well 3586) required some type of quantitative modeling " What is the support for this conclusion, where is it presented, and has it received regulator concurrence? If this conclusion is supported later in this document, it should be so stated here

Section 5.5 1 Last paragraph Of the metal COCs only Antimony is modeled because it is the worst case metal says the text The reason given is that if it results in no risk, the other metals are not a problem What about the cumulative effects of all metals especially if Antimony approaches unacceptable risks?

Table 5 5-1 & Section 5 5 3 2 The explanation provided for the significant prediction errors for Ponds A-1 through A-3 and Ponds B-1 through B-4 does not appear to be sufficient for justifying the validity of the model results Having plus and minus deviations added together to cancel out the errors does not appear to be an appropriate scientific approach

Baseline Risk Assessment Comments

The risk estimates for potentially exposed receptors are very low Cumulative noncarcinogenic hazard indexes were below 1 for all exposure areas and all receptors Reasonable maximum exposure cancer risk estimates were 9E-06 or below for all exposure areas and all receptors Estimated annual radiation doses for onsite receptors were 0 1 mrem/year or below These results indicate that no adverse noncarcinogenic health hazards, cancer risks or radiation exposures are expected These results may be used to support a decision that remediation is not warranted for the protection of public health

In general, the Human Health Risk Assessment and associated Appendices present the data, methods, definitions and assumptions used for the Baseline Risk Assessment very clearly The methods used are

consistent with good practice, and are as detailed in the Technical Memoranda, and are sufficiently rigorous to be defensible The data is well organized The equations are clearly presented and terms are well defined

More specific comments follow

Attachment J1 Estimating the Concentration Term

This attachment contains a discussion of the statistical methods used to test the distribution of the data and to calculate the concentration term All of the sample results used in the calculations are presented in tables

The discussion of the statistical methods used is very clear and adequately detailed However, the procedures applied which vary depending on the frequency of non-detect values seem contradictory In Case 2, when the frequency of non-detects is greater than 15% but less than 90%, it is correctly stated that the simple substitution of one-half of the sample quantification limit (SQL) for non-detect values introduces an unacceptable bias and is not recommended by EPA In Case 3, where the frequency of non-detect values is greater than 90%, the substitution of one-half the SQL is used, even though the bias thus introduced is greater than was unacceptable in Case 2 However, the bias introduced by this method would tend to increase the estimates of risk rather than decrease it Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions

There are some errors in the reported numbers of samples in the data tables, specifically Tables 10 and 17 The calculations for these data sets are apparently in error However the errors are such that the resulting estimates of risk are increased rather than decreased Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions

Ecological Risk Assessment Comments

General.
There are typographical errors and inconsistent definition of acronyms in the document Suggest conducting a technical edit of the document The technical memoranda (TM) referenced (TM1, TM2, and TM3) in the summary document were not available for this ecological review

Specific

Page 7-1, Paragraph 1 The first sentence indicates that the ERA for the Walnut Creek watershed is summarized in this document, however, the title of the document references Woman Creek Is the Walnut Creek ERA included in the Woman Creek ERA summary?

Page 7-1, Paragraph 2 The text indicates that "ERAs are now required for four areas " It is unclear from this statement whether or not these ERAs have been completed This paragraph further indicates that the ERA accompanying this report addresses ecological risks in the Walnut Creek and Woman Creek watersheds Is "this report" referring to Appendix F or to the current summary?

Page 7-1, Paragraph 3 The last sentence of this paragraph states that the methodology used in the current risk assessment evaluates the likelihood that effects from chemical stressors are occurring or may occur, however, the summary text focuses primarily on the likelihood of current effects Risk assessments under CERCLA require an assessment of current and future risks Consider using a subheading under each existing summary of risks heading to highlight current and future risks In addition to discussing the risks from chemical stressors, the summary also discusses the risks from radionuclides

Page 7-2, Section 7 1, Paragraph 1 The text states that the ecological risk assessment methodology (ERAM) was developed to support risk decisions for individual OUs, however, the second paragraph on page 7-1 implies that risk assessments should be conducted on watershed boundaries rather than on artificial administrative boundaries Does this apparent difference imply that the ERAM might not be appropriate for conducting risk assessments on watershed boundaries?

Page 7-4, Section 7.2, Paragraph 5 This paragraph states that the Hazard Index (HI) is used to approximate cumulative risk While the HI does have value as an additive measure of risk from different chemicals, it does not necessarily accurately depict cumulative risk to a species Other factors such as loss or degradation of habitat and changes in availability of food source(s) can impact the cumulative risk to a species and would not be accounted for in HI Further, HI as defined in this paragraph, appears to measure current risk only and not future risk Please discuss the limitations of using HI as a measure of cumulative risk

Page 7-4, Section 7.2, Last Paragraph The text identifies wide-ranging species as coyote, mule deer, and red-tailed hawk, but does not identify these species as receptors This same sentence states that four receptors with more restricted home ranges were also identified, but the text does not identify them and introduces the phrase "limiting species" Please clarify if the wide-ranging species identified are also receptors Please also clarify if the four receptors referred to in the same sentence should be considered as four receptor species and identify the species in this paragraph

Please also clarify that species such as the coyote, mule deer, and red-tailed hawk may cover large areas during certain life stages and during certain seasons and that life stage of an individual is also important relative to exposure and toxicity Please also indicate what life stage of these species, if any, was considered for the ERA and whether any of these species have local, more restricted home ranges at RFETS (e g , is the red-tailed hawk at RFETS considered migratory or non-migratory for this ERA?)

This paragraph also indicates that for wide-ranging species (receptors?), no HQs or HIs were greater than 1 and therefore risk is negligible It is not clear if the risk referred to is current or future risk

This paragraph further indicates that ECOCs were identified for limiting species and aquatic receptors Please clarify if limiting species are consider species with limited home ranges and whether or not this group of species is exclusive of any aquatic receptors This same sentence states that because these species spend all or most of their time in small areas, they are therefore in more frequent contact with contaminants Species with limited home ranges and/or confined by media (e g , fish in water) are only in more frequent contact with contaminants if the media they are restricted to is contaminated

Page 7-6, Section 7.3.1, Paragraph 4 This paragraph lists 5 groups of receptors Please clarify what categories (wide-ranging or limiting) these receptor groups correspond to and identify the specific species in each of the 5 groups For example, which of the 5 groups do the coyote and mule deer belong to? If the 5 receptor groups on this page are the result of screening that eliminated the mule deer and coyote from further consideration due to negligible risk, then please clarify why the receptor group terrestrial-feeding raptors remains

Different receptor groups are also referenced in Table F4-1 The groups listed in Table F4-1, however, do not include terrestrial-feeding raptors, while the summary document does Table F4-1 also lists as a group aquatic-feeding wildlife, while the summary document does not, but lists aquatic-feeding birds The table also includes an additional category, Radionuclide Effects to Vegetation and Wildlife, which is not a receptor group Please clarify the differences between Table F4-1 and the receptor groups listed in the summary document (Are the receptor groups identified in the summary and in Table F4-1 supposed to match?)

Page 7-6, Section 7 3 1, Paragraph 6 The first sentence of this paragraph states that endpoints were identified for each resource category Please define resource category This phrase is not defined in the previous text or in the referenced Table F4-1

Page 7-7, Section 7 3 2, Paragraph 1 The last sentence of this paragraph indicates that "more accurate" or quantitative methods were used Does this sentence imply that the methods used in other cases are less accurate or less quantitative Should the work precise be substituted for the work accurate? Please clarify

Page 7-7, Section 7 3 2, Paragraph 2 The first sentence of this paragraph refers to measurements in biota but does not identify the biota (e g , tissue samples?) Please clarify

The second sentence of this paragraph references Suter, 1993 following the statement "These data were reliable indicators of exposure " Please clarify if Suter 1993 is the reference for the reliability of these particular data or for these general data types

This paragraph also references Table 7 3 1 but Table 7 3 1 is not included in the summary package received for review

Page 7-7, Section 7 3 2 1, Paragraph 3 The first sentence states that HQ and HI calculations predict risk levels The last sentence of this paragraph implies that HQ and HI predict toxicity Do these metrics actually predict toxicity or are they merely a measurement or estimate of risk? Please clarify

It is not clear what is meant by the second sentence of this paragraph Please clarify

Page 7-8, Section 7.3 2 1, Paragraph 4 It is not clear what is meant by the reference to community composition (e g , total organism density and species richness) Was community composition measured using total organism density and species richness only?

It is also not clear what is gained by the discussion in Paragraphs 4-7 in this Section If this Section is supposed to summarize risks to aquatic life, it might assist the reader to clearly state what the current and future risks to aquatic life are estimated to be

Page 7-9, Section 7 3 2 2, Paragraph 1 The last sentence in this paragraph requires a reference

Page 7-9, Section 7 3 2 3, Paragraph 4 The last sentence of this paragraph suggests that further sampling is required further refine exposure estimates It might also be helpful to conduct prey studies of local kestrel populations to more precisely estimate the percentage and source of mammals comprising their diet

Page 7-11, Section 7 3 2 4 Should this Section be renamed "Summary of Risks to Preble's Jumping Mouse"? Was this species chosen to represent all small mammals?

Page 7-11, Section 7 3 2 4, Paragraph 2 It is assumed that references to the "jumping mouse" refer to the Preble's meadow jumping mouse If so, suggest using consistent terminology

Page 7-12, Section 7 3 2 5, Paragraph 1 The fifth sentence in this paragraph should be deleted if it can not be supported one way or another

Page 1, Table 7 3-1 Suggest using the heading "Receptor" instead of "Receptors at Risk" in the table heading

It would assist the reader if all of the "Source Areas" identified in Table 7 3-1 corresponded to a map such as Figure 7 2-2

It would assist the reader if Hazard Indices were also included in this Table

Figure 7 2-2 It would be helpful if this Figure were modified for reproduction in black and white The current black and white review copy does not reflect any difference in the patterns used to depict Hazard Indices for American kestrel, great blue heron, or mallard

DOE COMMENTS #2

9

Phase I RFI/RI Report
Walnut Creek Priority Drainage, Operable Unit No. 6 Comments

CAMD/EMT

Page 1-5, para. 2: The 6,550 and the 6,150 acreages should be checked with Steve Schiesswohl DOE, RFFO has transferred some of the property to the Wind Site.

Page 1-6, para. 2, lines 9, 10 and 11· This discussion is confusing. Is there a typo? 167.2 and 167 3 in OU7, 167.1 and 167.2 in OU7, or just 167.2 in OU7? Was 167.3 originally in OU6, removed to OU7, and then put back in OU6 and no longer in OU7? Why were these originally separated from OU6? What historical knowledge caused 167 3 (1?) to be retained?

Page 1-8, para 2: No. The two ditches come on site as separate ditches and go to a diversion box. After that they are either Upper Church or McKay bypass canal.

Pages 1-8 through 1-11: This discussion jumps around. It would be good to go through sequentially on the A and B Ponds (i.e. Historical through present or present through historical).

Page 1-9, para. 1, sentence 2: The ponds are not maintained at 10 percent capacity. They are filled, sampled, and discharged

Page 1-9, para. 3, lines 5 - 10: Spray evaporation is no longer performed on the Site. A-1 water is disposed of by natural evaporation or transferred to A-2. A-2 water is disposed of by natural evaporation or when necessary discharged to A-3 after sample

Page 1-10 Should the B-1 hot spot be mentioned in this discussion?

Page 1-10, Para 4, sentence 1 and 2. This should be used as lead sentences for paragraphs 1 and 2 on page 1-11

Page 1-11, para 1.: Some of this information has already been said in the above discussion

Page 1-11, para. 2: The discussion of the release of Ponds B-5 and A-4 should be presented here.

Page 1-11, para. 3, sentence 6. This sentence is a bit misleading as this pond is a flow-through pond.

Page 1-11, para. 4, sentence 4· The temporary trailers and the PA fence are "on or near" this IHSS but neither show up on the IHSS map.

Page 1-12, para. 4, sentence 4: Should be broken into 2 sentences. Also add 1970 behind September.

Page 1-13, para. 2, sentence 1· The Soil Dump Area is located "mostly" within the buffer zone.

Page 1-13, para. 3, line 5: 100 feet east if Building is not near the Old Out Fall Area. Do you mean west?

Page 1-13, para. 3, line 8: Contamination is unknown? Was no sampling performed?

Page 1-14, para. 1, lines 1 and 4: The PA and the security area need to be defined. The Triangle Area is located "mostly within the security area

Pages 1-14 through 1-16: This needs to be discussed sequentially. The first sentence of para. 2 is present; the rest is all history.

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10

Page 1-14, para. 2, line 16 How does high wind damage drums?

Page 1-15, para 1: How many drums were found to be leaking in 71 and 73?

Page 1-15, para. 1: Why were leaking drums discovered in 71 and 73 if they were transferred in 71?

Page 1-15, para. 3, sentence 1: When? 1971?

Page 1-15. para. 3, sentence 6: Incomplete sentence. "Eventual" vs. "eventually"?

Page 1-15, para. 4: What about the three times the leaking drums discovered is 1973? Should discuss.

Page 1-17, para. 4: See comment from page 1-6.

Page 1-18, para. 1: See comment from page 1-6

Page 1-18, para. 2, line 6: You discuss "the existing landfill pond", but it is labeled "the Present Landfill Pond " on the map.

Page 1-24, bullet 5: Add "Provide data for future CMS/FS or NFA "

Page 1-29: Antimony is also a COC?

Figures 1 3-4 through 1.3-7: What is the purpose of these blown up maps? They are not much better than the small scale maps Figure 1.3-7 should show the temporary trailers.

Figure 1.3-8: The area does not correspond with the new OU boundary shown on Figure 1.3-7.

Page 2-1, para. 1, sentence 2: Hard to follow. Use bullets or numbers to break out the sentence into distinct thoughts

Page 2-6, para 5, line 3: Stated "drilled through fill material into undisturbed soil of bedrock " Hopefully they were above groundwater and no DNAPLs present to help deeper migration.

Page 2-6, para. 5, sentence 3: Stated "VOC continuous " should be changed to "Continuous ..".

Page 2-15, para 3, sentence 4· Start a new paragraph here Identification of seep locations should have been performed later in the spring.

Page 2-19, para. 2, line 3 and Figures 2.2-2 through 2.2-12: There has been no previous discussion of Figure 2.2-2 (on page 2-26) when you mention Figures 2 2-3 through 2.2-12 (i.e. Figure 2.2-2 is out of order) Seems like you could put more than one or two ponds on one page and decrease the number of maps needed. Figure 2 2-8 is a good example.

Page 2-22, para. 1, line 7: Do you mean "east" rather than "northeast"?

Page 2-23, para. 2: Usually actual dates are presented on aerial photographs These should be stated.

Page 2-23, para. 4, line 9: Why was the seventh boring drilled so far away?

Page 2-24, para. 5: So now there are 3 different boundaries of IHSS 143: 1) historical, 2) HRR and 3) post Work Plan. You need to put the "HRR IHSS Boundary" on the map legend, not just call it "IHSS Boundary".

Page 2-28, para. 3, line 1: IHSS 165 is also outside the PA security fence.

Page 2-28, para. 5, line 1: Usually actual dates are presented on aerial photographs. These should be stated.

Page 2-32, para. 3, line 2. The trenches are located in the northwestern part of OU6

Page 2-33, para. 1-3. There is not a map showing the EM survey grids.

Page 2-35, para 2, line 7: Why was the Pond Spray Field moved to OU7 ?

Page 2-35, para. 4, line 4: Usually actual dates are presented on aerial photographs. These should be stated.

Page 2-35, para. 4: Again, there are 3 different boundaries of IHSS 167.3: 1) historical, 2) HRR and 3) new post Work Plan. You need to put the "HRR IHSS Boundary" on the map legend, not just call it "IHSS Boundary". Are the historical and post- Work Plan the same?

Page 2-36, para. 2-4: Much of this information is repeated and redundant within this section. It is also poorly organized. All Stage 3 information should be in consistent order (i.e. Surface Soil, Soil Borings, Soil Profile Pit, Sediment and Surface Water Sampling).

Page 2-37, para. 4, sentence 1: This sentence is not clear. Should read "one monitor well will be installed downgradient of both the North and South Spray Fields."

Page 2-37, para. 5, line 8. Start new paragraph here. 76792 is "north" not "south" of IHSS 167.3

Page 2-39, Stage 3: All Stage 3 information should be in consistent order (i.e. Surface Soil, Soil Borings, Soil Profile Pit, Sediment and Surface Water Sampling).

Page 2-39, para. 6, line 1· Should be "from" not "form".

Table 2.1-3 through 2.1-5. Extra blank pages.

Figure 2 1-4. Are they designed with the water level below or above the top of the screen?

Figures 2.2-3 through 2 2-12: These should have consistent colors. Figure 2 2-3 and 2 2-11 need to have the effluent labeled in purple.

Figure 2.2-14. The monitor well legend should be labeled in green to be consistent with the other maps.

Figure 2.2-20· The monitor well legend should be a solid circle rather than a square to be consistent with the other maps.

Figure 2 2-21. The monitor well legend should be consistent (i e green and solid circle)

Section 3: Pages 12, 14, 15, 17, 18, 20, 22, 24, 26, 35 and 62 are missing. Also not on draft paper like Sections 1 and 2.

Page 3-7, line 1. IHSS 141 is not in the PA and 165 is not all within the PA.

Page 3-13, line 1: The Arapahoe is not exposed in the valleys, only on the ridge top and side slopes

Page 3-18, Landslides: Landslides are a subset of the colluvial material.

12

Page 3-24: Discuss Aprpahoe before the Laramie-Fox Hills Aquifer. The Arapahoe is the first aquifer encoumtered.

Page 3-28, para. 28, lines 5-6: Should read "The maximum observed saturated thickness of RFA in OU6,..."

Page 3-38, para. 1, line 1: Should read "proximity of the Coal Creek drainage to the jnorth and west, and the Woman Creek. .".

Plates 3 5-2 and 3.5-3: The colors chosen for the Arapahoe, Laramie and Claystone/Siltstone should be consistent across the maps. There is a long outcrop of undifferentiated Lclst/sltst on Plate 3.5-2 northwest of Pond B-5 that is mapped as colluvium on the March 1995 map. Due to the different colors on the two plates, it appears as if it is mapped as Laramie on Plate 3.5-3. The legend should say "Top of Bedrock Contour and Elevation" not just "Bedrock Contour and Elevation".

Plate 3.5-3: There is a large outcrop of Arapahoe Formation just north of A-3 on the "Geologic Units at Rocky Flats Environmental Technology Site" dated March 15, 1995. This does not show up at all on this plate dated April 1995. They were published at approximately the same time and should be fairly consistent. There are also outcrops of the Laramie Formation north of Ponds A-4 and B-5 on the March map that show up as artificial fill on the April map.

Section 4, Table of Contents: Groundwater Section 4 6 is on page 4-47 not 4-41. Whole TOC needs to be checked carefully.

Page 4-2, line 1: Examples like "A more through history is presented in Section 1.3 2 of this report" really hurts the flow of this report. These statements are constantly interrupting the thoughts. This report would be a lot smaller if this was not done in every subsection. Maybe mention up front here and not put it throughout the whole section

Page 4-2, para. 3, line 4: "Discharges" should be changed to "effluent".

Page 4-3, line 1: Pond A-4 water is not routinely treated by GAC. The capability exists, but it has rarely if ever been used.

Page 4-3, para. 2, line 7: Change "shoed" to "showed".

Page 4-4, para. 2, last sentence: This sentence should read "When discharge from the pond into Walnut Creek is occurring, the effluent is sampled on a daily basis.

Page 4-6, para 2: Why two Trench Cs? Why not Trench D?

Page 4-6, para. 4, line 2. "During" not "Curing".

Page 4-6, para. 4, line 5: "location" not "located"

Page 4-6, para. 4, line 6: Same confusion as in comment Page 1-6, para. 2, lines 9, 10 and 11. Should this be 167.2?

Page 4-6, para. 4, line 7: "location" not "located"

Page 4-9, para. 4: This problem occurred during the French Drain Geotechnical Study of OU 1. Not sure how they resolved this problem To my recollection, they though it may have been from a dust suppressant they were using while drilling. Should ask "old-timers" what was concluded then.

13

Page 4-15, para. 3, line 2. "are" not "is".

Page 4-16, para. 4, line 2: See comment on Page 4-2, line 1.

Page 4-17, last line: See comment on Page 4-2, line 1.

Page 4-19, lines 3-5. See comment on Page 4-2, line 1.

Page 4-20, para. 3, line 3: See comment on Page 4-2, line 1. Lots of these through this section..

Page 4-47, para. 2, last sentence: Why? No contamination? Not characterized?

Page 4-48, para. 2, lines 1-2: "Shown with laboratory qualifiers and validation codes (Figure 4.4-1)" is written on each map. Why does it need to be rewritten here?

Page 4-69, para. 2, line 1-2: "Shown with laboratory qualifiers and validation codes (Figure 4.4-1)" is written on each map Why does it need to be rewritten here?

Attachment C

14

Responses to SAIC Comments on the Operable Unit 6 Draft Final RFI/RI Report 9/95

General Comments

1 Comments
The document is thorough and unusually well written Some of the detail on general information and discussion of methods could be moved to an appendix to reduce the bulk of the text As usual with such a document, technical editing should be conducted In some instances the table of contents is incomplete and figures could be adjusted to improve clarity

Response
A technical edit will be conducted before submitted as a Final

2 Comments
Title of report should not use "Phase I" unless there are plans to prepare additional RFI/RI reports entitled "Phase II," etc

Response
The Phase I designation will be retained to maintain consistency with previously generated documents

Specific Comments

1 Comments
Page iiv, Table of Contents, OU 6 List of Acronyms and Abbreviations – 1,2,-dichloroethane is misspelled

Response
Comment was incorporated

2 Comments
Page iv, Table of Contents, OU 6 List of Acronyms and Abbreviations – The chemical designation for Cesium should be "Cs "

Response
Comment was incorporated

3 Comments
Page ivi, Table of Contents, OU 6 List of Acronyms and Abbreviations – The definition for "meq/l" should be "milliequivalents/liter "

Response
Comment was incorporated

4 Comments
Pages 2-7, 2-9, 2-12, 2-13, 2-21 – Figures 2 1-2, 2 1-3, 2 1-4, 2 1-5, and Table 2 2-3 are missing from the report

Response
Pages and figures have already been added to the report The table will be added for the final report

5 Comments
Section 1 3 2 1st paragraph The symbols used in Figure 1 3-3 (referenced in 1 3 2) for the historical locations of IHSSs 167 2 and 167 3 is the same except for different line weight as the symbol used for the present landfill, IHSS 114 Symbols with more significant difference should be used The legend does not show the symbol for the landfill The text only refers to the historical and revised boundaries of IHSS 167 2, but the figure shows revised boundaries for both IHSSs

Response
The symbol for the OU7 Landfill was changed and added to the legend The text refers to both IHSSs in Section 1 3 2, paragraph 1, 3rd sentence

6 Comments
2nd paragraph This paragraph indicates that the locations of IHSS 167 2 and 167 3 were revised and the boundaries of 5 other IHSSs adjusted in the HRR based on a reevaluation that happened after the OU 6 Work Plan was written This paragraph goes on to say that the investigations were carried out according to the specifications in the work plan but that the Phase I boreholes and wells were located after a review of the historical data and aerial photographs It is assumed that the investigations were conducted in the adjusted areas rather than in the previous locations This is not clearly stated in the text

Response
The investigations for the OU6 IHSSs were conducted within the original locations as specified by the Work Plan The field sampling was not altered to incorporate the revised IHSSs from the Historical Release Report The text was changed to provide clarity

7 Comments
Section 1 3 2 1 4th sentence, 3rd paragraph Delete one of the two references to June, 1972

Response
Comment was incorporated

8 Comments
Section 1 3 2 2 This section contains a description of the streams that drain surface water from the area and does not describe particular IHSSs It does, however, lead into the description of the A and B-Series ponds Consideration should be given to move this section to another area in the report that describes physiographic features such as Section 3, or editing it into the description of the A and B-Series ponds

Response
Section 1 3 2 2 was deleted This information already exists within Section 3

9 Comments
Section 1 3 2 4 The 5th paragraph says that the B-3 pond receives effluent from the STP It is not clear how the effluent reaches B-3 without encountering ponds B-1 and 2 These 2 ponds lie between the STP and B-3 and no diversion or pipeline is shown that would by-pass B-I and 2 (see Figures 1 3-3 & 1 3-6)

Response
Figure and text have incorporated a reference to the underground pipeline that transfers water from the STP to Pond B-3

10 Comments
Figure 1 3-8 The area of detail for IHSS 143 is not graphically consistent with the drawing it details The detail map uses the designation "stream" which must be the McKay Ditch shown on the larger drawing The orientations of these 2 features ("stream" and McKay Ditch) are not consistent on the 2 drawings Both maps should use the same designations and show similar features in the same orientation so that the reader can easily relate the features

Response
The source for these figures presented the information in this manner Although this would improve the quality of the report, the information is presented in a readable manner and the effort necessary to revise this figure would not add significant value

11 Comments
Section 1 3 2 9 2nd paragraph A reference is made to a 1988 EPA document that provided information about the history of the A, B, and C Trenches Earlier, in section 1 3 2, 3rd paragraph, the sources for the descriptions of the IHSSs were given and the EPA document was not included in that list of sources

Response
Document was added to the text of Section 1 3 2

12 Comments
Section 1 3 2 10 This section is not listed in the Table of Contents

Response
The document was reformatted and all fourth level headings were removed

13 Comments
Section 1 4 2nd paragraph Six Technical Memoranda were prepared and the purpose of this paragraph was apparently to list them The paragraph lists 7 documents as bulletted items and only labels 5 as being TMs This inconsistency should be fixed

Response
The text within this section was changed to read "supplementary technical reports" instead of strictly technical memoranda

14 Comments
Section 2 1 4th paragraph This paragraph describes when decontamination of various equipment occurred No mention of decontamination prior to the investigation has been made, only that equipment was decontaminated between IHSSs and at the end of the investigation

Response
The first sentence of paragraph 4 states "Prior to the start of field activities, drilling and sampling equipment was decontaminated at the RFETS main decontamination facility in accordance with SOPs FO 03 and FO 04 "

15 Comments

Section 2 1 3 1 2nd paragraph The text states, "VOC continuous samples were collected throughout the entire borehole depth for lithologic logging purposes " VOC samples and lithologic samples should be handled differently Samples used for lithologic logging should not be used for VOC samples for obvious reasons

Response

The acronym VOC was removed from the text It seems to have been placed in the sentence in error, the sentence is more accurate without it

16 Comments

Section 2 1 3 4 How were the 3 soil profile locations selected? They seem to be spread out across OU 6 to give general coverage Or were they selected based on specific IHSS requirements?

Response

The soil profile trenches were not required by the OU6 Work Plan Although they were excavated, described, and sampled during the OU6 field investigation, they were generated for a soil investigation project All references to the soil profiles were deleted

17 Comments

Section 2 2 2nd paragraph Please give more detail to the explanation why the stage numbering in this report does not match the numbering assigned in the work plan The stages numbered in the work plan follow the logical order in which the investigation should have proceeded Later stages may be based on the preliminary data gathering or preliminary field surveys

Response

The chronological order of steps as presented in this report match the chronological order presented in the Work Plan There was no deviation in the intended order of events The stage numbering in this report provides clarity and consistency between the stage number and the activity

18 Comments

Section 2 2 2 Page 2-22, third para , A and B-Series Ponds (IHSSs 142 1 through 142 9), W&I Pond (IHSS 142 12), and Walnut Creek Drainages (Non-IHSS), Stage 4 – This paragraph states that no analytical results were used from the wells 75092 and 75292 If this is true, then Table 2 2-1 and this section should state that this was a deviation from the TM1 and was an incomplete Phase I investigation, since installation with no data availability does not constitute completion

Response

In order to begin data aggregation and background comparison, a cut off date for accepting additional data had to be established Unfortunately, the results from these wells was not available at that time The data that eventually came in falls within the data set previously available A statement will be added to the report that explains this concept

19 Comments

Section 2 2 3 Page 2-24 Deviations from the Work Plan – Why was the boundary of IHSS 143 not extended, if the suspected contamination was outside the defined area?

Response
The text is inaccurate on this point The IHSS was extended in the HRR, subsequent to 1992 update, and now reflects the area investigated during the field investigation The text will be changed to reflect this change A Document Change Notice to the Work Plan was issued to address the change in boundaries

20 Comments
Section 2 2 5 Page 2-29, third para , Stage 2 – This paragraph presents some results for this IHSS, yet no other IHSS has results presented in Section 2 Why give results here?

Response
Results were deleted from this paragraph to provide consistency with the other similar sections

21 Comments
Section 2 2 5 Page 2-29, Deviations from TM1 and Work Plan – The change in spacing from 25-foot to 40-foot should be explained

Response
Based on a review of TM1, the HPGe survey replaced the FIDLER instrument survey Therefore, this is not a deviation from the Work Plan and TM1 The text was deleted from this section

22 Comments
Section 2 2 5 Page 2-30 Deviations from TM1 and Work Plan, second bullet – Explain why it is necessary to state that the SGS grid spacing was not reduced for this sample site

Response
The text was added to the end of the deviation concerning the referenced bullet "Although this is above the detection limit, the concentration was not considered significant enough to warrant reduced grid spacing "

23 Comments
Section 2 2 6 Page 2-33 Stage 3, first para – This paragraph indicates that no soil borings were made and, therefore, no data were collected on the actual IHSS If there was no time to perform this work after the IHSS location was redefined, this report should so state Presenting data for a location that is not of interest and has no bearing on the investigation should be deleted from the report

Response
The statement that the IHSS location was revised and relocated is in error The IHSS location has never changed The borings are outside the area that the Work Plan defines for the IHSS because they were based primarily on aerial photos and the geophysical study The text was revised

24 Comments
Section 2 2 7 Page 2-35 Stage I, first para – The IHSS should be sampled, if the area of concern is not the IHSS, the IHSS should be relocated IHSS 167 3 does not appear to have been sampled

Response
Section 1 3 2 explains that IHSSs 167 2 and 167 3 were transferred to OU7 after the field investigation was completed The former IHSS 167 3 was sampled and evaluated, see Figure 2 2-21

25 Comments
Table 2 1-1 second column, first item for Walnut Creek Drainage – What type of activity had 11 "things" done?

Response
The text, "Stream Surface Water Sampling (base flow)" was added to the blank space

26 Comments
Table 2 2-1 page 4, IHSS 156 2, Soil Dump Area, Radiation Survey – Reason for Deviation is given as "As per EG&G " This is not a reason The explanation in the text should be inserted here

Response
Text changed to "HPGe survey equipment unavailable prior to field sampling "

27 Comments
Section 2 4 The review of aerial photography showed that IHSS 156 2 extended further to the west than previously thought This additional area was not sampled No explanation other than paved and gravel covered areas were not sampled Is this sufficient justification for not sampling about 1/4 of the IHSS? Gravel was removed prior to sampling in IHSS 165 (Section 2 2 5)

Response
Because the HRR changed the IHSS boundary at about the time that the field work program was beginning, the decision was made to sample according to the original locations from the Work Plan The field samples were determined to provide sufficient coverage of the soil disposal area Text was added to Section 2 2 4, Stage 3 to provide clarity

28 Comments
Section 2 2 5 Why were the deviations from TM1 and the work plan for Stage 2 activities made and what is the justification for them? Provide support for the reduced scope of the investigation (especially the rad survey) and evidence that it provides adequate information and meets the DQOs

Response
See response to question 21 for the first deviation and question 22 for the third deviation The second deviation is only a result of the actual application of the 100-ft grid to the IHSS The maximum possible SGS locations, using the 100-ft grid was 31 The figure in the Work Plan that contains the SGS locations only shows 39 locations Therefore, the 50 locations were never realistic and adequate coverage of the IHSS was obtained

The DQOs presented in Section 1, Table 1 4-1 do not provide information that would indicate that these deviations are problematic

29 Comments

Section 2 2 6 The east part of Trench C was relocated south of the soil borings (taken to investigate this trench) based on the geophysical survey Are the existing borings sufficient to characterize Trench C If so give supporting reasons and if not what is the justification for not taking new soil borings within the new boundary of the east part of Trench C?

Response

See response to question 23

30 Comments

Section 3 6 2 1 2 This section describes the recharge to the UHSU The 4th paragraph describes recharge from the present landfill (IHSS 114) and refers to Figure 3 6-1 Please show the location of the present landfill on this figure to assist the reader The text states that groundwater flows from the present landfill to the southeast toward South Walnut Creek The southeast flow from the present landfill is actually toward North Walnut Creek

Response

The text was corrected and the map now shows the OU7 Landfill boundary

31 Comments

Section 3 7 3 This section discusses the capacities of the A and B series ponds relative to volumes of runoff The section discusses previous high precipitation events but does not include the probable record runoff of 1995 While this data may be too new for thorough analysis, this report should mention the event and its impact on the ponds and potential off-site migration of contaminants in a general qualitative way

Response

The May 1995 storm was much less than a 100 year event, however it was in combination with nearly saturated soils The result was a large amount of water moving through the system This was also in combination with pond levels that were already high because of the batch-release mode of pond management There is little reason to believe that this storm transported pond sediments downstream Furthermore, there is no evidence of soil contamination within OU6 that is high enough to cause elevated levels of contamination to be transported offsite Therefore, the statements concerning the pond system capacity are still accurate Outside of the large volume of water that exited the site during this storm, there is not enough information about the level of contamination in the surface water from this storm to make any unique conclusions

32 Comments

Section 3 7 4 6th paragraph This paragraph discusses several of the sub-basins of Walnut Creek The first sentence uses the term "best developed drainage" to define the sub-basins essentially around the security area Define the meaning of "best developed drainage "

Response

Text was changed to read "most heavily altered and developed "

33 Comments

Section 3 8 Ecology section, "To be supplied by Stoller," is missing

Response

This section was not meant to be included and will be deleted from the Final Report

34 Comments
Section 3 9 1 2 2nd paragraph The text says that 2 borings were drilled adjacent and parallel to 2 other borings What does parallel mean in this usage?

Response
The word "parallel" appears to be unnecessary and was deleted

35 Comments
Section 4 2 4 Please include a brief discussion of the 5X and 10X rules referred to in the 4th paragraph

Response
A reference to Appendix E7 2 3 was added to the text Although this section does not give a definition of the 5X and 10X rule, it does describe its source and how it was applied

36 Comments
Section 4 3 5 5th paragraph Why were antimony and manganese retained as COIs?

Response
Please see Appendix J, Section 3 4 4 for a detailed explanation of why antimony and manganese were retained as COIs

37 Comments
Section 5 1 3 5th paragraph Please explain the meaning of " when flow carrying capacity is less than the resistance of sediment " in the first sentence

Response
The text was changed to read "Sediment deposition can occur when the settling velocity of the particulate material exceeds the turbulent velocity of the stream "

38 Comments
6th paragraph Isn't outflow from at least some of the ponds restricted and as a consequence any sediment flowing into the pond will necessarily precipitate in the pond unless resuspended by a large storm event? If this is the case the discussion of when deposition will occur in the ponds is unnecessary because all sediment will ultimately precipitate in the ponds

Response
Although the detention and discharge of pond waters is tightly controlled, not all of the particulate material will settle in the ponds This is due to extremely slow settling velocity of small particles combined with wind agitation and continuous inflows from the creeks or discharges of upstream ponds

39 Comments
Section 5 2 1 Sediment Transport – The last sentence says that sediment transport processes tend to slow the migration of chemicals with high partition coefficients relative to those with low coefficients This is not exactly true Chemicals with high partition coefficients rely on sediment transport for migration These chemicals, because they are bound to sediment particles due to their high partition coefficients, are not free to migrate as dissolved constituents of water It is not the sediment transport process that slows their migration but their high partition coefficient

Response
The text was changed to read "Sedimentation processes tend to slow the overall migration of chemicals with high partition coefficients "

40 Comments
Section 5 3 2 Last paragraph Metals and radionuclides have been found in groundwater from wells located near the W&I Pond Is it possible that these contaminants are associated with surface soils that were introduced to the groundwater during the drilling and well installation process rather than from groundwater itself? There have been problems with contamination introduced to groundwater by drilling in this area

Response
There is a significant likelihood that the metals and radionuclides found in groundwater from wells near the W & I pond were introduced to the groundwater during the drilling and well installation process A discussion of this possibility was added to the appropriate subsections of Section 4, Nature and Extent of Contamination

41 Comments
Section 5 4 1st paragraph In this paragraph the text says that "It was determined that only one of the identified conditions (VC in well 3586) required some type of quantitative modeling " What is the support for this conclusion, where is it presented, and has it received regulator concurrence? If this conclusion is supported later in this document, it should be so stated here

Response
This is documented in the OU6 Model Description TM Although the regulatory agencies, specifically the EPA, declined to issue final approval on this document, they are familiar with the choice In light of the sitewide groundwater strategy, the OU6 approach is still reasonable

42 Comments
Section 5 5 1 Last paragraph Of the metal COCs only Antimony is modeled because it is the worst case metal says the text The reason given is that if it results in no risk, the other metals are not a problem What about the cumulative effects of all metals especially if Antimony approaches unacceptable risks?

Response
The surface water model was designed to evaluate transport of COCs from source areas, not to study the cumulative effects of all transported metals Therefore, Antimony was used as a tracer or surrogate constituent to evaluate worst-case transport The HHRA addresses the cumulative effects of risk

43 Comments
Table 5 5-1 & Section 5 5 3 2 The explanation provided for the significant prediction errors for Ponds A- 1 through A-3, and Ponds B- I through B-4 does not appear to be sufficient for justifying the validity of the model results Having plus and minus deviations added together to cancel out the errors does not appear to be an appropriate scientific approach

Response
As explained in the second paragraph under Section 5 5 3 2, the ponds were pooled to reduce the effects of the somewhat uncertain operation rules Pond operation involves

the routing of surface water through the A- and B-series ponds To account for this, operation rules were incorporated into the model However, these rules may differ from past pond operating procedures and this uncertainty makes the comparison of simulated and estimated sediment deposits in individual ponds less useful for calibration purposes

44 Comments

The discussion of the statistical methods used is very clear and adequately detailed However, the procedures applied which vary depending on the frequency of non-detect values seem contradictory In Case 2, when the frequency of non-detects is greater than 15% but less than 90%, it is correctly stated that the simple substitution of one-half of the sample quantification limit (SQL) for non-detect values introduces an unacceptable bias and is not recommended by EPA In Case 3, where the frequency of non- detect values is greater than 90%, the substitution of one-half the SQL is used, even though the bias thus introduced is greater than was unacceptable in Case 2 However, the bias introduced by this method would tend to increase the estimates of risk rather than decrease it Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions

Response

Sanford et al (1993) tested the accuracy of different replacement methods for nondetects, evaluating the accuracy of different methods by the root mean square error and by a scoring system They concluded that the performance of the different replacement methods differed with the number of nondetects For as much as 80% nondetects, simple substitution and the maximum likelihood estimation (MLE) methods show similar strength In cases with greater than 80% nondetects, the results obtained from simple substitution and MLE may be quite different, and can lead to different conclusions (depending on where the SQLs lie in relation to the detected values) For the OU6 risk assessment, a 90% nondetect rate was chosen as a cutoff point for not using the MLE method In data sets with greater than 90% nondetects (Case 3), the maximum detected concentration is used for the concentration term when the use of simple substitution yields a 95% UCL that exceeds the maximum The text for Case 3 was amended

45 Comments

There are some errors in the reported numbers of samples in the data tables, specifically Tables 10 and 17 The calculations for these data sets are apparently in error However the errors are-such that the resulting estimates of risk are increased rather than decreased Therefore, changing the method would not increase the estimates of risk or alter the Human Health Risk Assessment conclusions

Response

In Tables 10 and 17 of Attachment J1, the U-qualified data were dropped if the SQLs were so high that using one-half of the SQL would skew the date above the maximum The maximum detected concentration is used for the concentration term in data sets where the 95% UCL exceeds the maximum The 95% UCL is used in the remainder to the data sets

References

Sanford, R F , Pierson, C T , and Crovelli, R A , 1993 An objective replacement method for censored geochemical data *Mathematical Geology*, 25 1, p 59-80

Ecological Risk Assessment Comments

General Comments

46 Comments
There are typographical errors and inconsistent definition of acronyms in the document Suggest conducting a technical edit of the document The technical memoranda (TM) referenced (TM1, TM2, and TM3) in the summary document were not available for this ecological review

Response

The text of Section 7 was excerpted from Appendix F, which was prepared as a "stand alone" document Inconsistencies in acronym usage and definitions will be corrected Typographical errors will be corrected

Specific Comments

47 Comments
Page 7-1, Paragraph 1 The first sentence indicates that the ERA for the Walnut Creek watershed is summarized in this document, however, the title of the document references Woman Creek Is the Walnut Creek ERA included in the Woman Creek ERA summary?

Response
The text was changed to read "Walnut Creek "

48 Comments
Page 7-1, Paragraph 2 The text indicates that "ERAs are now required for four areas " It is unclear from this statement whether or not these ERAs have been completed This paragraph further indicates that the ERA accompanying this report addresses ecological risks in the Walnut Creek and Woman Creek watersheds Is "this report" referring to Appendix F or to the current summary?

Response
A draft ERA was prepared for OU3 and is currently under review by agencies An ERA for the Industrial Area has not been initiated The text of the report will be revised to reflect the status of other ERAs at RFETS

49 Comments
Page 7-1, Paragraph 3 The last sentence of this paragraph states that the methodology used in the current risk assessment evaluates the likelihood that effects from chemical stressors are occurring or may occur, however, the summary text focuses primarily on the likelihood of current effects Risk assessments under CERCLA require an assessment of current and future risks Consider using a subheading under each existing summary of risks heading to highlight current and future risks In addition to discussing the risks from chemical stressors, the summary also discusses the risks from radionuclides

Response
The current risk evaluation focuses on chemical exposures under current conditions and uses available data on contaminant distribution to estimate exposure and risks Many of

the primary sources were removed due to past remediation activities, or will be attenuated through future site remediation Therefore, concentrations of Ecological Chemicals of Concern (ECOCs) in environmental media will probably decline with time due to chemical decomposition or dilution Thus, in most cases the current conditions probably represent the "worst-case scenario" with respect to potential exposure of ecological receptors

An exception to this assumption may be contaminants currently contained in groundwater, but not present near the surface The potential for such chemicals to "daylight" at surface water seeps and becoming available to plant and animals is addressed in Appendix F However, this treatment is relatively qualitative, because groundwater modeling for RFETS is not well enough developed to make quantitative predictions about the contaminant concentrations in surface waters that would result from contact with groundwater sources

The text of Section 7 and Appendix F will be revised to more clearly address potential future conditions The evaluations will be qualitative and indicate the potential for increases in the concentrations, bioavailability, or toxicity of ECOCs

50 Comments

Page 7-2, Section 7 1, Paragraph 1 The text states that the ecological risk assessment methodology (ERAM) was developed to support risk decisions for individual OUs, however, the second paragraph on page 7-1 implies that risk assessments should be conducted on watershed boundaries rather than on artificial administrative boundaries Does this apparent difference imply that the ERAM might not be appropriate for conducting risk assessments on watershed boundaries?

Response

The text of this paragraph is meant to imply that while the ERA was designed to address risks in this section of the watershed, it was also designed to support risk management decisions in individual OUs To accomplish this, contributions of individual or groups of IHSSs within an OU to overall risks were included in the results This approach intended to allow risks from each OU to be evaluated relative to other sources at RFETS

51 Comments

Page 7-4, Section 7 2, Paragraph 5 This paragraph states that the Hazard Index (HI) is used to approximate cumulative risk While the HI does have value as an additive measure of risk from different chemicals, it does not necessarily accurately depict cumulative risk to a species Other factors such as loss or degradation of habitat and changes in availability of food source(s) can impact the cumulative risk to a species and would not be accounted for in HI Further, HI as defined in this paragraph, appears to measure current risk only and not future risk Please discuss the limitations of using HI as a measure of cumulative risk

Response

As it was used in this ERA, the HI was intended to be a rough indicator of risk from chemical exposure of a given species to multiple chemicals We recognize that the HI approach does not accurately represent risks to habitat quality The evaluation of multiple species (or functional groups) at various levels of biological organization was intended to allow assessment of impacts to habitat components This point was clarified in the text

52 Comments

Page 7-4, Section 7 2, Last Paragraph The text identifies wide-ranging species as coyote, mule deer, and red-tailed hawk, but does not identify these species as receptors This same sentence states that four receptors with more restricted home ranges were

also identified, but the text does not identify them and introduces the phrase "limiting species" Please clarify if the wide-ranging species identified are also receptors Please also clarify if the four receptors referred to in the same sentence should be considered as four receptor species and identify the species in this paragraph

Response
This comment addressed multiple points regarding the use of representative receptors Each point is addressed under a separate bullet The paragraph will be revised to clarify the use of receptor species and groups

53 Comments
Please also clarify that species such as the coyote, mule deer, and red-tailed hawk may cover large areas during certain life stages and during certain seasons and that life stage of an individual is also important relative to exposure and toxicity Please also indicate what life stage of these species, if any, was considered for the ERA and whether any of these species have local, more restricted home ranges at RFETS (e g , is the red-tailed hawk at RFETS considered migratory or non-migratory for this ERA?)

Response
For purposes of the preliminary risk screen, all receptors were assumed to spend 100 percent of their time at RFETS Thus, the exposure scenario included all life stages

54 Comments
This paragraph also indicates that for wide-ranging species (receptors?), no HQs or HIs were greater than 1 and therefore risk is negligible It is not clear if the risk referred to is current or future risk

Response
Ecotoxicological benchmarks used to evaluate risk from exposures were based on information and methods developed at Oak Ridge National Laboratories The benchmarks were developed from experimental studies involving chronic exposures and measurement of reproductive effects in experimental animals, or adjusted using "safety factors" if these specific data were not available (ORNL 1994) Thus, the benchmarks that were derived to assess risk at sensitive life stages This process is described in detail in Appendix F The text of Section 7 2 will be revised to clarify the context

55 Comments
This paragraph further indicates that ECOCs were identified for limiting species and aquatic receptors Please clarify if limiting species are consider species with limited home ranges and whether or not this group of species is exclusive of any aquatic receptors This same sentence states that because these species spend all or most of their time in small areas, they are therefore in more frequent contact with contaminants Species with limited home ranges and/or confined by media (e g , fish in water) are only in more frequent contact with contaminants if the media they are restricted to is contaminated

Response
See response # 49
The paragraph will be revised to more clearly define receptors and their use The use of "limiting species" was intended to represent the "limiting" or worst case exposure scenario for areas with potential contamination (i e , source areas) The preliminary exposure assessment did not address areas remote from potential contamination

56 Comments

Page 7-6, Section 7 3 1, Paragraph 4 This paragraph lists 5 groups of receptors Please clarify what categories (wide-ranging or limiting) these receptor groups correspond to and identify the specific species in each of the 5 groups For example, which of the 5 groups do the coyote and mule deer belong to? If the 5 receptor groups on this page are the result of screening that eliminated the mule deer and coyote from further consideration due to negligible risk, then please clarify why the receptor group terrestrial-feeding raptors remains

Response

The paragraph lists the receptor groups evaluated in the risk characterization which does not include receptors for which negligible risk was identified in the preliminary risk screen The "terrestrial-feeding raptors" in this list would be more appropriately identified as "terrestrial-feeding raptors with small foraging ranges " The American kestrel has a relatively small foraging range and was identified for further risk characterization in some source areas The text will be clarified to reflect this point

57 Comments

Different receptor groups are also referenced in Table F4-1 The groups listed in Table F4-1, however, do not include terrestrial-feeding raptors, while the summary document does Table F4-1 also lists as a group aquatic-feeding wildlife, while the summary document does not, but lists aquatic-feeding birds The table also includes an additional category, Radionuclide Effects to Vegetation and Wildlife, which is not a receptor group Please clarify the differences between Table F4-1 and the receptor groups listed in the summary document (Are the receptor groups identified in the summary and in Table F4-1 supposed to match?)

Response

Terrestrial-feeding raptors were incorrectly omitted from Table F4 1 Terminology use between Section 7 and the Appendix will be clarified As described in Appendix F, risks from radionuclide contamination were identified separately in Table F4 1

58 Comments

Page 7-6, Section 7 3 1, Paragraph 6 The first sentence of this paragraph states that endpoints were identified for each resource category Please define resource category This phrase is not defined in the previous text or in the referenced Table F4-1

Response

The term "resource category" will be replaced with receptor group

59 Comments

Page 7-7, Section 7 3 2, Paragraph 1 The last sentence of this paragraph indicates that "more accurate" or quantitative methods were used Does this sentence imply that the methods used in other cases are less accurate or less quantitative Should the word precise be substituted for the word accurate? Please clarify

Response

The term "accurate" will be replaced with "precise "

60 Comments

Page 7-7, Section 7 3 2, Paragraph 2 The first sentence of this paragraph refers to measurements in biota but does not identify the biota (e g , tissue samples?) Please clarify

The second sentence of this paragraph references Suter, 1993 following the statement "These data were reliable indicators of exposure " Please clarify if Suter 1993 is the reference for the reliability of these particular data or for these general data types

This paragraph also references Table 7 3 1 but Table 7 3 1 is not included in the summary package received for review

Response
The biota samples refer to tissue samples The reference from Suter (1993) is to the type of sample These points will be clarified in the revised text

61 Comments
Page 7-7, Section 7 3 2 1, Paragraph 3 The first sentence states that HQ and HI calculations predict risk levels The last sentence of this paragraph implies that HQ and HI predict toxicity Do these metrics actually predict toxicity or are they merely a measurement or estimate of risk? Please clarify

It is not clear what is meant by the second sentence of this paragraph Please clarify

Response
The quotient method was used as an indicator of risk that predicted exposures would result in toxicity The text will be revised to indicate this more clearly The second sentence of the paragraph will be deleted

62 Comments
Page 7-8, Section 7 3 2 1, Paragraph 4 It is not clear what is meant by the reference to community composition (e g , total organism density and species richness) Was community composition measured using total organism density and species richness only?

Response
Total organism density and species richness were presented as examples of community composition metrics A more complete description of the analysis is presented in Appendix F

63 Comments
It is also not clear what is gained by the discussion in Paragraphs 4-7 in this Section If this Section is supposed to summarize risks to aquatic life, it might assist the reader to clearly state what the current and future risks to aquatic life are estimated to be

Response
Paragraphs 4-7 identified in the comment address the lack of agreement between the preliminary risk screen which was based entirely on literature-derived benchmarks and chemical concentrations in abiotic media, and direct measures of biological community attributes This suggests that the results of the preliminary screen overestimated the risk that chemical contamination would lead to toxic effects in aquatic test organisms and resultant changes in the community composition The text will be revised to more clearly support this conclusion

64 Comments
Page 7-9, Section 7 3 2 2, Paragraph 1 The last sentence in this paragraph requires a reference

Response
A reference will be provided to support this statement

65 Comments
Page 7-9, Section 7 3 2 3, Paragraph 4 The last sentence of this paragraph suggests that further sampling is required to further refine exposure estimates It might also be helpful to conduct prey studies of local kestrel populations to more precisely estimate the percentage and source of mammals comprising their diet

Response
Data on kestrel diet composition are available for the Colorado Front Range Small mammals are usually not 100 percent of the kestrel diet However, for purposes of the exposure assessment, the kestrels entire diet was assumed to contain the metal concentrations found in small mammals This was necessary because data on other dietary components (e g , insects) were not available for the A-ponds source area

66 Comments
Page 7-11, Section 7 3 2 4 Should this Section be renamed "Summary of Risks to Preble's Jumping Mouse"? Was this species chosen to represent all small mammals?

Response
The Preble's meadow jumping mouse was selected to represent the small mammals because of its special status This point will be clarified in the text

67 Comments
Page 7-11, Section 7 3 2 4, Paragraph 2 It is assumed that references to the "jumping mouse" refer to the Preble's meadow jumping mouse If so, suggest using consistent terminology

Response
References to Preble's meadow jumping mouse will be made consistent

68 Comments
Page 7-12, Section 7 3 2 5, Paragraph 1 The fifth sentence in this paragraph should be deleted if it can not be supported one way or another

Response
The statement refers to the range of natural conditions at the sites In most cases, the toxicity reference values (TRVs) were based on the 95 percent upper confidence limit for RFETS background data Many of the site exposure concentrations were not much higher than RFETS background conditions resulting in HQs not much greater than 1 0 This statement in the text refers to the possibility that site metal concentrations may be within the natural range More support for this statement will be provided

69 Comments
Page 1, Table 7 3-1 Suggest using the heading "Receptor" instead of "Receptors at Risk" in the table heading

It would assist the reader if all of the "Source Areas" identified in Table 7 3-1 corresponded to a map such as Figure 7 2-2

It would assist the reader if Hazard Indices were also included in this Table

Response
"Receptors at Risk" will be replaced with "Receptor" in the table

Figure 7 2-2 was deleted from this section

This table lists the hazard quotients for the ECOCs The hazard indices were generated and used in the screening of PCOCs and therefore do not belong on this table

70 Comments
Figure 7 2-2 It would be helpful if this Figure were modified for reproduction in black and white The current black and white review copy does not reflect any difference in the patterns used to depict Hazard Indices for American kestrel, great blue heron, or mallard

Response
Figure 7 2-2 was deleted from this section

References

ORNL (Oak Ridge National Laboratory) 1994 Toxicological Benchmarks for Screening Contaminants of Potential Concern 1994 Revision

Attachment D:

31

Responses to CAMD/EMT Comments on the Operable Unit 6 Draft Final RFI/RI Report 9/95

1 Comment
Page 1-5, para 2 The 6,550 and the 6,150 acreage's should be checked with Steve Schiesswohl DOE, RFFO has transferred some of the property to the Wind Site

Response
The text was changed to 6260 total acres and 5860 total acres in the buffer zone

2 Comment
Page 1-6, para 2, lines 9, 10 and 11 This discussion is confusing Is there a typo? 167 2 and 167 3 in OU7, 167 1 and 167 2 in OU7, or just 167 2 in OU7? Was 167 3 originally in OU6, removed to OU7, and then put back in OU6 and no longer in OU7? Why were these originally separated from OU6? What historical knowledge caused 167 3 (1?) to be retained?

Response
The locations for IHSSs167 2 and 167 3 were moved by the Historical Release Report and then administratively transferred to OU7 This occurred during the field investigation for OU6, after these IHSSs had already been sampled in their original locations The existing files for these IHSSs contained a photograph of IHSS 167 3 showing evidence that the original location was likely used as a spray field Based on this photograph, the OU6 Project Manager chose to retain the original location for IHSS 167 3 in the OU6 RFI/RI Report as the "former IHSS 167 3 " The text was changed in Sections 1 and 2 to clarify this

3 Comment
Page 1-8, para 2 No The two ditches come on site as separate ditches and go to a diversion box After that they are either Upper Church or McKay bypass canal

Response
This section was removed from the report It is unnecessary to include with the descriptions of IHSSs

4 Comment
Pages 1-8 through 1-11 This discussion jumps around It would be good to go through sequentially on the A and B Ponds (i e Historical through present or present through historical)

Response
Although this would improve the quality of the report, the information is presented in a readable manner and the effort necessary to revise this section would not add significant value

5 Comment
Page 1-9, para 1, sentence 2 The ponds are not maintained at 10 percent capacity They are filled, sampled, and discharged

Response
This sentence was removed

6 Comment
Page 1-9, para 3, lines 5-10 Spray evaporation is no longer performed on the Site A-I water is disposed of by natural evaporation or transferred to A-2 A-2 water is disposed of by natural evaporation or when necessary discharged to A-3 after sample

Response
The comment was incorporated into the text

7 Comment
Page 1-10 Should the B-1 hot spot be mentioned in this discussion?

Response
It is more appropriate to include a discussion in Section 2 2 2, Stage 3 as a separate paragraph Text was added that describes the historical and physical nature and extent of contamination at the hot spot

8 Comment
Page 1-10, Para 4, sentence 1 and 2 This should be used as lead sentences for paragraphs 1 and 2 on page 1-11

Response
The comment was incorporated into the text

9 Comment
Page 1-11, para 1 Some of this information has already been said in the above discussion

Response
Paragraph 1 summarizes the present conditions The previous paragraphs under this section are historical

10 Comment
Page 1-11, para 2 The discussion of the release of Ponds B-5 and A-4 should be presented here

Response
The discussion of the A-4 and B-5 discharges is in Section 1 3 2 3 The purpose of this section is to present the sources for potential contamination within the surface water and sediment

11 Comment
Page 1-11, para 3, sentence 6 This sentence is a bit misleading as this pond is a flow-through pond

Response
The sentence in question was modified to read, "Surface water exits the pond when the capacity of the pond is exceeded by the influent "

12 Comment
Page 1-11, para 4, sentence 4 The temporary trailers and the PA fence are "on or near" this IHSS but neither show up on the IHSS map

Response
The text was modified to read "buildings" instead of "temporary trailers " Figure 1 3-3 will be adjusted to better delineate this IHSS in relation to the PA fence and the buildings

13 Comment
Page 1-12, para 4, sentence 4 Should be broken into 2 sentences Also add 1970 behind September

Response
The comment was incorporated into the text

14 Comment
Page 1-13, para 2, sentence 1 The Soil Dump Area is located "mostly" within the buffer zone

Response
The comment was incorporated into the text

15 Comment
Page 1-13, para 3, line 5 100 feet east if Building is not near the Old Out Fall Area Do you mean west?

Response
The comment was incorporated into the text

16 Comment
Page 1-13, para 3, line 8 Contamination is unknown? Was no sampling performed?

Response
The asphalt and concrete debris was not sampled during the OU6 field investigation The presence of these materials was minimal

17 Comment
Page 1-14, para 1, lines 1 and 4 The PA and the security area need to be defined The Triangle Area is located mostly within the security area

Response
The words "security area" were replace with "PA " It is assumed that the reader understands the basic aspects of RFETS

18 Comment
Pages 1-14 through 1-16 This needs to be discussed sequentially The first sentence of para 2 is present, the rest is all history

Response
The first sentence of the second paragraph was moved to the first paragraph

19 Comment
Page 1-14, para 2, line 16 How does high wind damage drums?

Response
The source for this information is cited at the end of the paragraph Interpretation of that document is beyond the scope of this report

20 Comment
Page 1-15, para 1 How many drums were found to be leaking in 71 and 73?

Response
The source for this information is cited at the end of the paragraph Interpretation of that document is beyond the scope of this report

21 Comment
Page 1-15, para 1 Why were leaking drums discovered in 71 and 73 if they were transferred in 71?

Response
The only drums transferred in 1971 were the drums that were being stored at the time This does not mean that they never added new drums to this area after the 1971 transfer

22 Comment
Page 1-15, para 3, sentence 1 When? 1971?

Response
The date is 1971 and the text was revised to incorporate it

23 Comment
Page 1-15 para 3, sentence 6 Incomplete sentence "Eventual" vs "eventually"?

Response
The sentence was rewritten to provide clarity

24 Comment
Page 1-15, para 4 What about the three times the leaking drums discovered is 1973? Should discuss

Response
A paragraph covering each of the three occurrences was added to the text

25 Comment
Page 1-17, para 4 See comment from page I – 6

Response
See response to question 2

26 Comment
Page 1-18, para 1 See comment from page I – 6

Response
See response to question 2

27 Comment
Page 1-18, para 2, line 6 You discuss "the existing landfill pond", but it is labeled "The Present Landfill Pond " on the map

Response
"Existing" is used as an adjective, not as part of the proper name

28 Comment
Page 1-24, bullet 5 Add "Provide data for future CMS/FS or NFA "

Response
Bullet added "Provide data for potential analysis of remedial alternatives "

29 Comment
Page 1-29 Antimony is also a COC?

Response
Antimony is not a COC, it is a chemical of interest (COI) COIs are chemicals that could pose a health risk due to toxicity values, but are found in concentrations close to naturally occurring levels COIs are analyzed in the uncertainty portion of the Human Health Risk Assessment (J10 3)

30 Comment
Figures 1 3-4 through 1 3-7 What is the purpose of these blown up maps? They are not much better than the small scale maps Figure 1 3-7 should show the temporary trailers

Response
These figures provide detail on the IHSS locations and the soil excavations in IHSS 165 that become difficult to discern on a smaller scale figure All references to temporary trailers were removed

31 Comment
Figure 1 3-8 The area does not correspond with the new OU boundary shown on Figure 1 3-7

Response
The IHSS boundary is incorrect, it actually extends up to the PA fence to the north The map was corrected

32 Comment
Page 2-1, para 1, sentence 2 Hard to follow Use bullets or numbers to break out the sentence into distinct thoughts

Response
The referenced sentence was rewritten to add clarity

33 Comment
Page 2-6, para 5, line 3 Stated "drilled through fill material into undisturbed soil of bedrock " Hopefully they were above groundwater and no DNAPLs present to help deeper migration

Response
Sampling was carried out in accordance with the Work Plan and the appropriate SOPs

34 Comment
Page 2-6, para 5, sentence 3 Stated "VOC continuous " should be changed to "Continuous "

Response
The comment was incorporated into the text

35 Comment
Page 2-15, para 3, sentence 4 Start a new paragraph here Identification of seep locations should have been performed later in the spring

Response
The comment was incorporated into the text Identification of seep locations should have been performed later in the spring, but the schedule necessitated that this activity be performed earlier than desired

36 Comment
Page 2-19, para 2, line 3 and Figures 2 2-2 through 2 2-12 There has been no previous discussion of Figure 2 2-2 (on page 2-26) when you mention Figures 2 2-3 through 2 2-12 (i e , Figure 2 2-2 is out of order) Seems like you could put more than one or two ponds on one page and decrease the number of maps needed Figure 2 2-8 is a good example

Response
Although this would improve the quality and readability of the report, the information is presented in a usable manner and the effort necessary to revise these figures would not add significant value

37 Comment
Page 2-22, para 1, line 7 Do you mean "east" rather than "northeast"?

Response
The text was changed to read "east" rather than "northeast "

38 Comment
Page 2-23, para 2 Usually actual dates are presented on aerial photographs These should be stated

Response
The text shows the dates of the aerial photographs In many cases, the day of the month is not written on the photograph, only the month and the year

39 Comment
Page 2-23, para 4, line 9, Why was the seventh boring drilled so far away?

Response
The Work Plan requires this boring and the justification is found in the historical description of the IHSS

40 Comment
Page 2-24, para 5 So now there are 3 different boundaries of IHSS 143 1) historical, 2) HRR and 3) post Work Plan You need to put the "HRR IHSS Boundary" on the map legend, not just call it "IHSS Boundary"

Response
The boundary for IHSS 143 is confusing in this report Revisions made to the text and the figures containing IHSS 143 should add clarity See response to question number 12

41 Comment
Page 2-28, para 3, line I IHSS 165 is also outside the PA security fence

Response
The description now includes a reference to the portion of IHSS 165 outside of the PA

42 Comment
Page 2-28, para 5, line 1 Usually actual dates are presented on aerial photographs These should be stated

Response
The dates presented in the text are the extent of the information known about the chosen photographs

43 Comment
Page 2-32, para 3, line 2 The trenches are located in the northwestern part of OU6

Response
The text was changed to read "northwestern" rather than "northern "

44 Comment
Page 2-33, para 1-3 There is not a map showing the EM survey grids

Response
This information is referenced for Appendix B4 and is found there

45 Comment
Page 2-35, para 2, Line 7 Why was the Pond Spray Field moved to OU7 ?

Response
The HRR (June 1992) determined that the Pond Spray field, IHSS 167 2, was located in error Aerial photographs and historical information located it north of the OU7 Landfill Pond

46 Comment
Page 2-35, para 4, line 4 Usually actual dates are presented on aerial photographs These should be stated

Response
See response to question number 42

47 Comment
Page 2-35, para 4 Again, there are 3 different boundaries of IHSS 167 3 I) historical, 2) HRR and 3) new post Work Plan You need to put the "HRR IHSS Boundary" on the map legend, not just call it "IHSS Boundary " Are the historical and post- Work Plan the same?

Response
The representation of IHSS 167 3 should be clear Figure 2 2-21 shows the historical boundary, which is also in the Work Plan The historical location was retained within OU6 due to the aerial photograph from 1980 and 1983 Also see response to question number 2

48 Comment
Page 2-36, para 24 Much of this information is repeated and redundant within its section It is also poorly organized All Stage 3 information should be in consistent order (i e Surface Soil, Soil Borings, Soil Profile Pit, Sediment and Surface Water Sampling)

Response
This section was reorganized to provide clarity

49 Comment
Page 2-37, para 4, sentence 1 This sentence is not clear Should read "one monitoring well will be installed downgradient of both the North and South Spray Fields "

Response
The comment was incorporated into the text

50 Comment
Page 2-37, para 5, line 8 Start new paragraph here 76792 is "north" not "south" of IHSS 167 3

Response
The comment was incorporated into the text

51 Comment
Page 2-39, Stage 3 All Stage 3 information should be in consistent order (i e Surface Soil, Soil Borings, Soil Profile ht, Sediment and Surface Water Sampling)

Response
The text was reorganized to provide clarity

52 Comment
Page 2-39, para 6, line I Should be "from" not "form"

Response
The comment was incorporated into the text

53 Comment
Table 2 1-3 through 2 1-5 Extra blank pages

Response
Reproduction problems were corrected

54 Comment
Figure 2 1-4 Are they designed with the water level below or above the top of the screen?

Response
Alluvial monitoring wells are designed with the water level within the screened interval, or above it

55 Comment
Figures 2 2-3 through 2 2-12 These should have consistent colors Figure 2 2-3 and 2 2- 11 need to have the effluent labeled in purple

Response
Although this would improve the quality and readability of the report, the information is presented in a usable manner and the effort necessary to revise these figures would not add significant value

56 Comment
Figure 2 2-14 The monitoring well legend should be labeled in green to be consistent with the other maps

Response
Although this would improve the quality and readability of the report, the information is presented in a usable manner and the effort necessary to revise this figure would not add significant value

57 Comment
Figure 2 2-20 The monitor well legend should be a solid circle rather than a square to be consistent with the other maps

Response
Although this would improve the quality and readability of the report, the information is presented in a usable manner and the effort necessary to revise this figure would not add significant value

58 Comment
Figure 2 2-21 The monitor well legend should be consistent (i e green and solid circle)

Response
Although this would improve the quality and readability of the report, the information is presented in a usable manner and the effort necessary to revise this figure would not add significant value

59 Comment
Section 3 Pages 12, 14,15, 17, 18, 20, 22, 24, 26, 35 and 62 are missing Also not on draft paper like Sections 1 and 2

Response
Reproduction problems were corrected

60 Comment
Page 3-7, line 1 IHSS 141 is not in the PA and 165 is not all within the PA

Response
The text was changed to read "developed part" instead of PA

61 Comment
Page 3-13, line 1 The Arapahoe is not exposed in the valleys, only on the ridge top and side slopes

Response
The text was adjusted according to the recommendation

62 Comment
Page 3-18, Landslides Landslides are a subset of the colluvial material

Response
The text discusses the possibility of bedrock involvement in the landslides, therefore it is included as a separate section in the text

63 Comment
Page 3-24 Discuss Arapahoe before the Laramie-Fox Hills Aquifer The Arapahoe is the first aquifer encountered

Response
The text was adjusted according to the recommendation

64 Comment
Page 3-28, para 28, lines 5 – 6 Should read "The maximum observed saturated thickness of RFA in OU6, "

Response
The text was adjusted according to the recommendation

65 Comment
Page 3-38 para 1, line 1 Should read "proximity of the Coal Creek drainage to the north and west, and the Woman Creek "

Response
The text was adjusted according to the recommendation

66 Comment
Plates 3 5-2 and 3 5-3 The colors chosen for the Arapahoe, Laramie and Claystone/Siltstone should be consistent across the maps There is a long outcrop of undifferentiated Lclst/sltst on Plate 3 5-2 northwest of Pond B-5 that is mapped as colluvium on the March 1995 map Due to the different colors on the two plates, it appears as if it is mapped as Laramie on Plate 3 5-3 The legend should say "Top of Bedrock Contour and Elevation" not just "Bedrock Contour and Elevation"

Response
This question presents two issue First of all, the comment refers to a March 1995 map, which can not be found and was not provided in this report

Second, although a uniformity of color coding between plates and the legend "Top of Bedrock Contour and Elevation" would improve the readability of the report, the information is presented in a usable manner and the effort necessary to revise these plates would not add significant value for the cost required to make the changes

67 Comment
Plate 3 5-3 There is a large outcrop of Arapahoe Formation just north of A-3 on the "Geologic Units at Rocky Plats Environmental Technology Site" dated March 15, 1995 This does not show up at all on this plate dated April 1995 They were published at approximately the same time and should be fairly consistent There are also outcrops of the Laramie Formation north of Ponds A-4 and B-5 on the March map that show up as artificial fill on the April map

Response
Once again, the comment refers to a March 15, 1995 map that was not provided in this report

68 Comment
Section 4, Table of Contents, Groundwater Section 4 6 Is on page 4-47 not 4-41 Whole TOC needs to be checked carefully

Response
Table of Contents will be revised for Final RFI/RI Report

69 Comment
Page 4-2, line 1 Examples like "A more thorough history is presented in Section 1 3 2 of this report" really hurts the flow of this report These statements are constantly interrupting the thoughts This report would be a lot smaller if this was not done in every subsection Maybe mention up front here and not put it throughout the whole section

Response
This particular reference to Section 1 3 2 will be retained in this section All other references to Section 1 3 2 will be deleted

70 Comment
Page 4-2, para 3, line 4 "Discharges" should be changed to "effluent"

Response
The comment was incorporated into the text

71 Comment
Page 4-3, line 1 Pond A-4 water is not routinely treated by GAC The capability exists, but it has rarely if ever been used

Response
The text was adjusted according to the recommendation

72 Comment
Page 4-3, para 2, line 7 Change "shoed" to "showed"

Response
The comment was incorporated into the text

73 Comment
Page 4-4, para 2, last sentence This sentence should read "When discharge from the pond into Walnut Creek is occurring, the effluent is sampled on a daily basis

Response
The comment was incorporated into the text

74 Comment
Page 4-6, para 2 Why two Trench Cs? Why not Trench D?

Response
The IAG and the Work Plan established the names for the IHSSs Two Trench Cs have caused no major difficulties

75 Comment
Page 4-6, para 4, line 2 "During" not "Curing"

Response
The comment was incorporated into the text

76 Comment
Page 4-6, para 4, line 5 "location" not "located"

Response
The comment was incorporated into the text

77 Comment
Page 4-6, para 4, line 6 Same confusion as in comment Page 1-6, para 2, lines 9,10 and 11 Should this be 167 2?

Response
See response to question 2

78 Comment
Page 4-6, para 4, line 7 "location" not "located"

Response
The comment was incorporated into the text

79 Comment
Page 4-9, para 4 This problem occurred during the French Drain Geotechnical Study of OU 1 Not sure how they resolved this problem To my recollection, they though it may have been from a dust suppressant they were using while drilling Should ask "old-timers" what was concluded then

Response
Dust suppressant was not used during the OU6 field investigation It is fairly certain within Environmental Restoration at RFETS that toluene is present in the epoxy found on black electrical tape It has also become common knowledge within the environmental assessment and remediation industry

80 Comment
Page 4-15, para 3, line 2 "are" not "is"

Response
The comment was incorporated into the text

81 Comment
Page 4-16, para 4, line 2 See comment on Page 4-2, line 1

Response
The cited text was removed

82 Comment
Page 4-17, last line See comment on Page 4-2, line 1

Response
The cited text was removed

83 Comment
Page 4-19, lines 3-5 See comment on Page 4-2, line 1

Response
The cited text was removed

84 Comment
Page 4-20, para 3, line 3 See comment on Page 4-2, line 1 Lots of these through this section

Response
The cited text was removed

85 Comment
Page 4-47, para 2, last sentence Why? No contamination? Not characterized?

Response
The text was added, "The geochemistry and hydraulic properties of the UHSU and LHSU indicate that the interactions between the two units are minimal " The Work Plan did not contain any activities that would aid in the characterization of the LHSU

86 Comment
Page 4-48, para 2, lines 1-2 "Shown laboratory qualifiers and validation codes (Figure 4 4-1)" is written on each map Why does it need to be rewritten here?

Response
The text was unnecessary and was deleted

87 Comment
Page 4-69, para 2, line 1-2 "Shown with laboratory qualifiers and validation codes (Figure 4 4-1)" is written on each map Why does it need to be rewritten here?

Response
The text was unnecessary and was deleted

Response to SAIC comments dated January 30, 1996

1 Comment

Comment 17 asks for more detail explaining why the stage numbering in the RFI/RI differs from the proposed stage numbering in the Work Plan The 2nd paragraph in section 2 2 of the RFI/RI says, "The stage numbering presented in the following sections may not match stage numbers assigned in the Work Plan for particular IHSSs " The comment response says that the chronological order of steps presented in the report match the chronological order presented in the Work Plan Are stages and steps the same thing? Does the comment intend to say that the statement made in the 2nd paragraph is not accurate because the stage numbering does in all cases match for each IHSS in the Work Plan and the RFI/RI? If the stage numbering did not vary in the 2 documents, the statement in Section 2 2 should be deleted If the stages did vary in some cases, the response to comments is inaccurate

Response

Stages and steps are equal The only thing that does not match between the Work Plan and the RFI/RI is the numbers assigned to each stage The Work Plan assigned different numbers to the same activity between IHSSs For example, Stage 2 for IHSS 156 2 is "Radiation Survey," but for IHSS 166 1 it is "Geophysical Survey " The RFI/RI provided consistency between the stage number and the activity whereas the Work Plan sequentially numbered each stage for each IHSS The intent of the methodology used in the RFI/RI was to provide consistency and clarity The statement in the text will not be revised because it is still accurate

2 Comment

Comment 31 recommended that the report qualitatively address the impacts and implications of the large mid-June 1995 storm event relative to the capacities of the A and B series ponds Preparation of the report was well under way when this storm event occurred, consequently that event could not be addressed quantitavely The first 3 sentences of the response to comments should be added to the text of the RFI/RI These sentences address the hydraulic conditions of the soil and ponds prior to the storm and the affects of the storm when those conditions exist

Response

The first three sentences were added to this section

Comment

In addition the response to this comment indicated that no unique conclusions could be made because not enough information about the level of contamination in the surface water resulting from the storm were available What is known is that all of the storm water runoff was contained in Great Western Reservoir and the sediment carried by the storm runoff will ultimately be deposited there The response stated that, "There is little reason to believe that this storm transported contamination within OU6 that is high enough to cause elevated levels of contamination to be transported offsite " No basis for this statement was provided Concentrations of contamination in runoff may be low based on soil concentrations in OU6 but the impacts of the concentrating effect of Great Western Resevoir of runoff derived sediment may be significant The concentrating effect is evident from the OU3 investigation That investigation determined that the deep sediment in Great Western Reservoir did in fact contain about 4 pCi/g plutonium at a depth of about 18 inches (resulting from a mid1970s contamination event) The text

should discuss the possibility of off-site movement based on this study and the 1995 runoff event

Response
The reponse to comments actually stated "There is little reason to believe that this storm transported pond sediments downstream Furthermore, there is no evidence of soil contamination within OU6 that is high enough to cause elevated levels contamination to be transported offsite " A distinction must be made from the event that OU3 contends led to transport of plutonium into Great Western Reservoir and the May 1995 storm The mid 1970s contamination event involved significant manipulation of pond sediments during the reconstruction and re-engineering of the pond dams The flow through system being used at that time allowed the suspended solids to be transported offsite The May 1995 was a large precipitation event, but not a resuspension of pond sediments The justification for this statement can be found in Appendix H, Attachment A of the RFI/RI Report

There may be a possibility of suspended surface soil concentrating in Great Western Reservoir as a result of the May 1995 event Adding a discussion of this possibility is not in context with this section

In summary, adding a detailed description of potential offsite transport of contaminants from the May 1995 event only adds confusion, not clarity, and is not in context with the referenced section

3 Comment
Comment 53 addressed the impacts on species relative to the life stages spent on site The response indicated that for purposes of the risk screen all receptors were assumed to spend 100 percent of their time on site The response did not indicate if this clarification would be included in the text of the report Please revise the text with this clarification

Response
The text was revised to include this clarification